

User Manual

April 2010 Revision 1.1

POSEO 5200

Hardware System



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Manual Version 1.1

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TRADEMARK

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Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrical power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

CE MARK



This device complies with the requirements of the EEC directive 2004/108/EC with regard to "Electromagnetic compatibility" and 2006/95/EC "Low Voltage Directive".

FCC

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

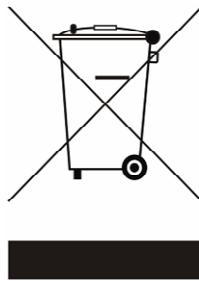
- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION ON LITHIUM BATTERIES

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

LEGISLATION AND WEEE SYMBOL

2002/96/EC Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.



The crossed dustbin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.

To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Revision History

| Revision Number | Description | Revision Date |
|------------------------|--|----------------------|
| 1.0 | Initial release | 2008 August |
| 1.1 | Updated specifications Updated motherboard drawing Added Appendix B: Dimensional Drawings & Moved BIOS Error Codes to Appendix C | 2010 April |

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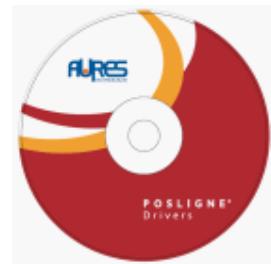
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1. Packing List

Take the system unit out of the carton. Remove the unit from the carton by holding it by the foam inserts. The following contents should be found in the carton:



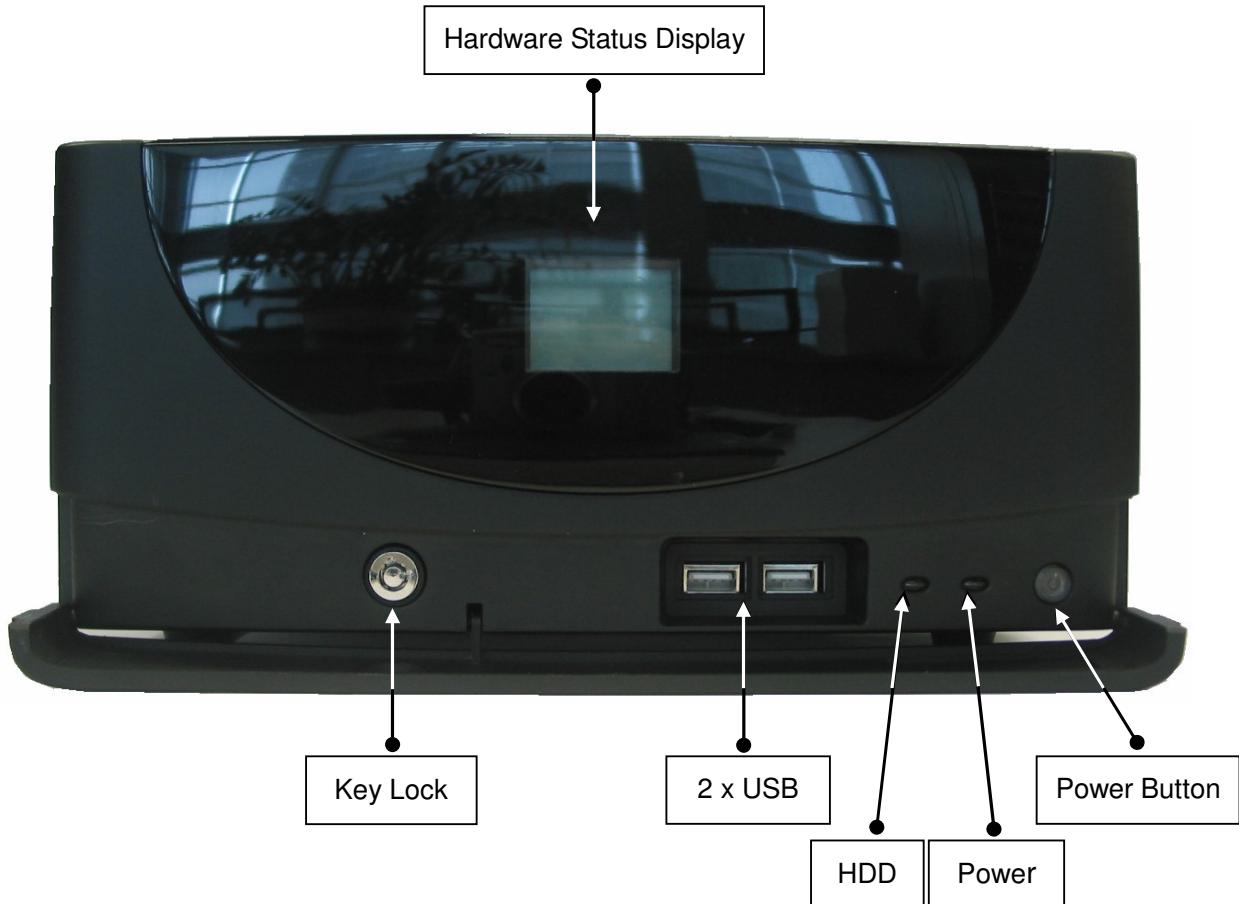
a. Power Cable



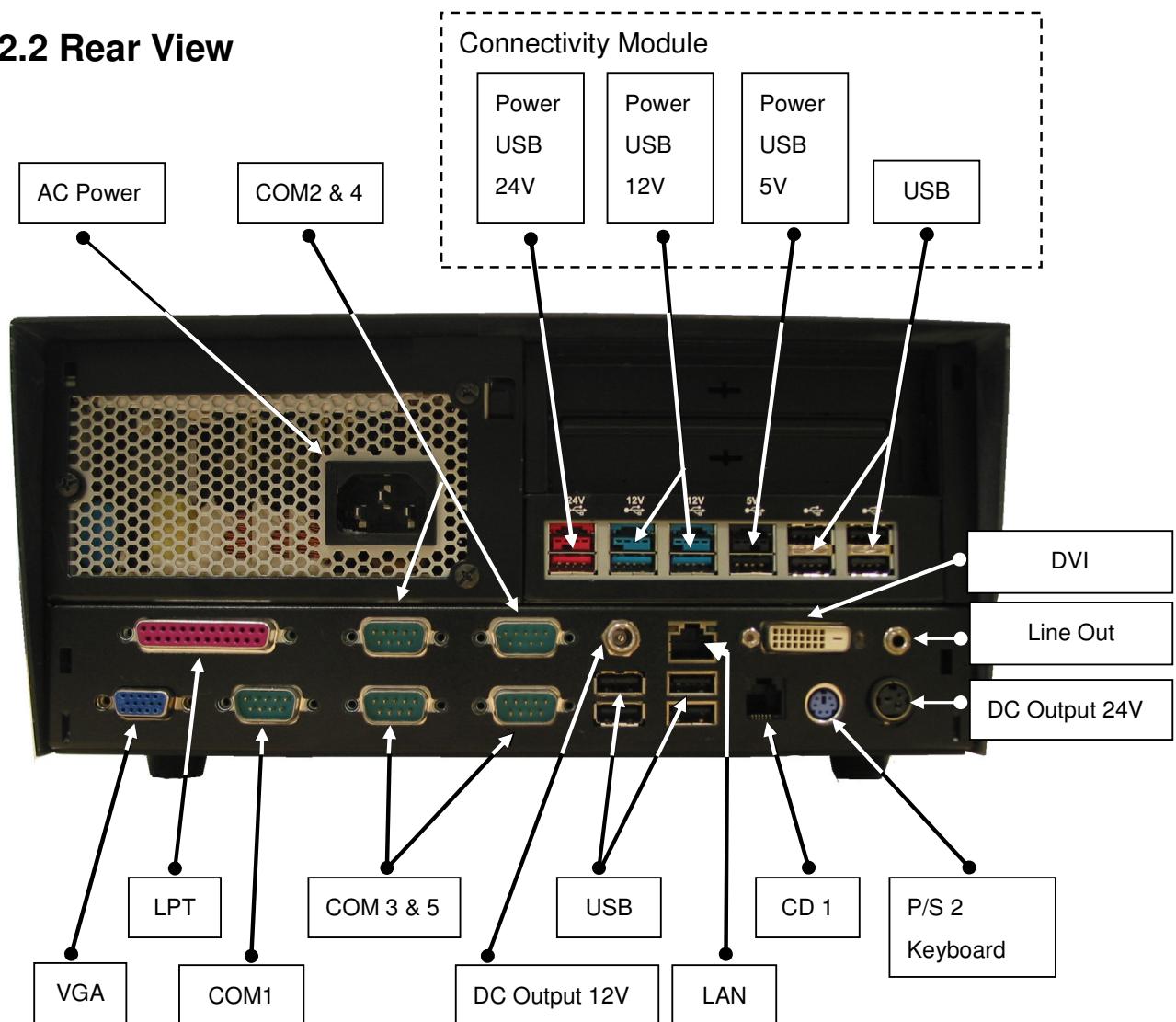
b. Driver CD

2. System View

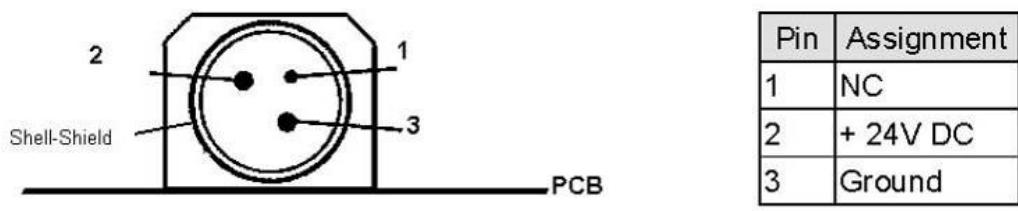
2.1 Front View



2.2 Rear View



Note: The maximum current that can be drawn from each COM port is 500 mA.



DC output 24 V Pin Assignment

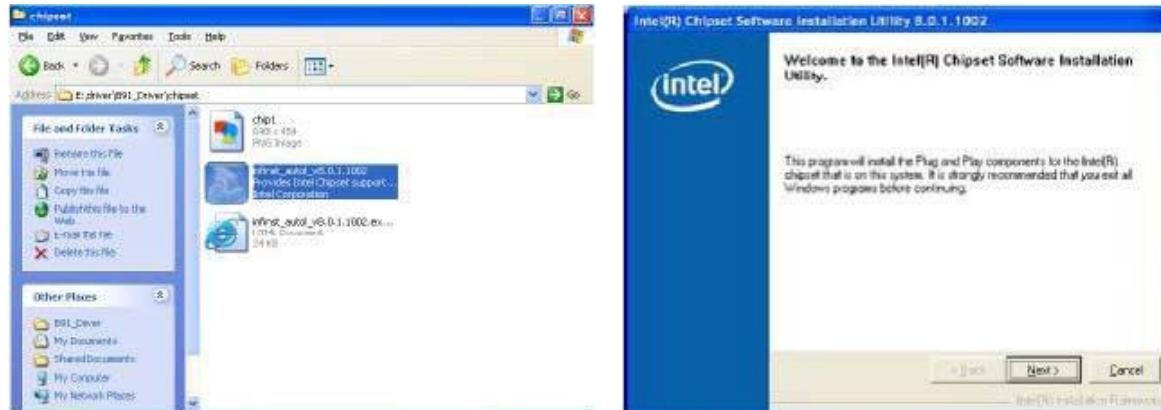
3. Driver Installation

3.1 Driver List

| Folder/File | File Description |
|---|-----------------------------------|
| <CD>:\Poseo5200.htm | POSEO 5200 Driver List |
| <CD>:\Common\Intel\Chipset\i9xx | Chipset Driver |
| <CD>:\Common\INTEL\Utility\WindowsXP_update\KB921411(Chipset) | Windows XP update (Chipset) |
| <CD>:\Common\INTEL\Utility\WindowsXP_update\KB896256(Dual%20Core%20CPU) | Windows XP update (Dual Core CPU) |
| <CD>:\COMMON\INTEL\VGA\i94x | VGA Driver |
| <CD>:\Common\INTEL\Raid\ICH7R\Windows\Driver | SATA RAID Driver |
| <CD>:\Common\INTEL\Raid\ICH7R\Windows\raid_tools | RAID Manager Utility |
| <CD>:\Common\AC97_Codec\Realtek\ALC202A | Audio Driver |
| <CD>:\Common\Lan_driver\Realtek_PCI\ | LAN Driver |

-The following procedures are for Windows XP, other platforms are similar.

3.2 Chipset Driver Installation



- a. Double click "infinst_autol_v8.0.1.1002" on the My Computer window. window.
- b. Click the "Next" button on the Welcome window.



c. Click the "Yes" button on the License Agreement window.



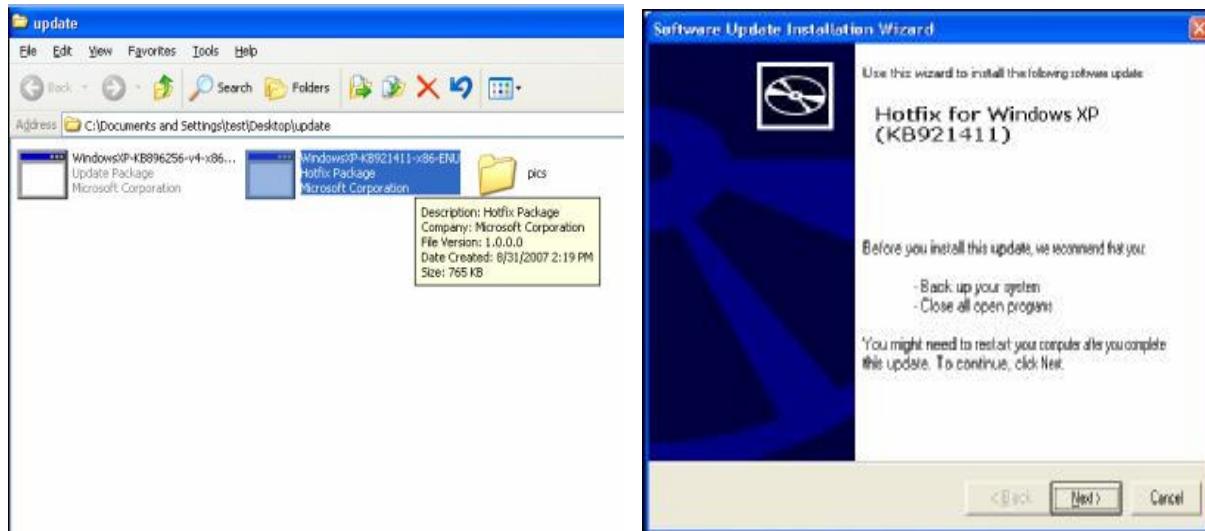
d. Click the "Next" button on the Readme Information window.



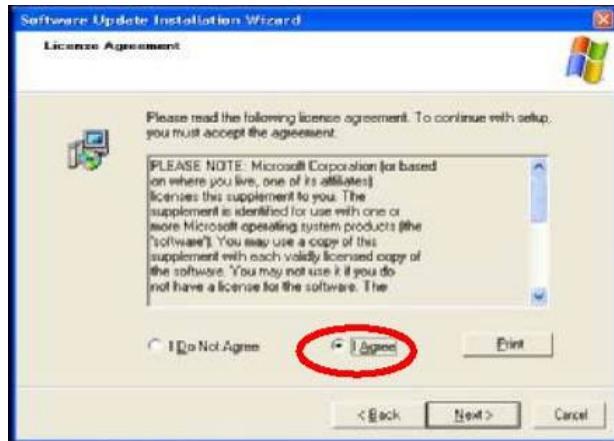
e. Click the "Finish" button and restart your system.

Installation of Windows XP update for Chipset

* You must install this update after installing the Chipset driver. Without this update, your USB ports may not work correctly.

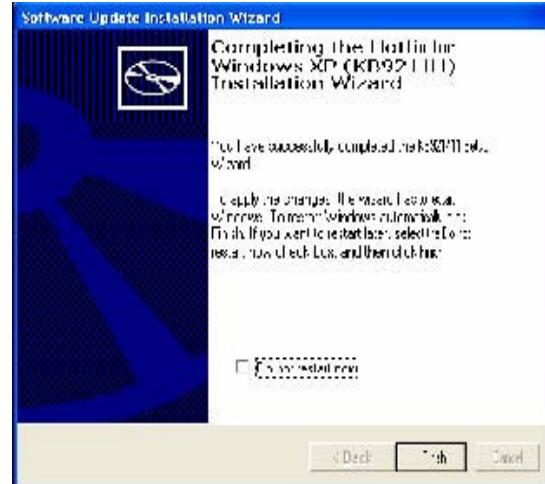


a. Click "WindowsXP-KB921411-x86-ENU" on the My Computer window.



c. Choose "I Agree" then click the "Next" button on the License Agreement window

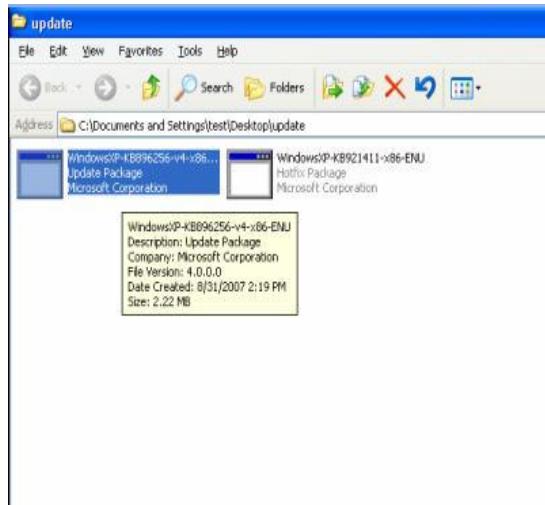
b. Click the "Next" button on the KB921411 window.



d. Click the "Finish" button and restart your system.

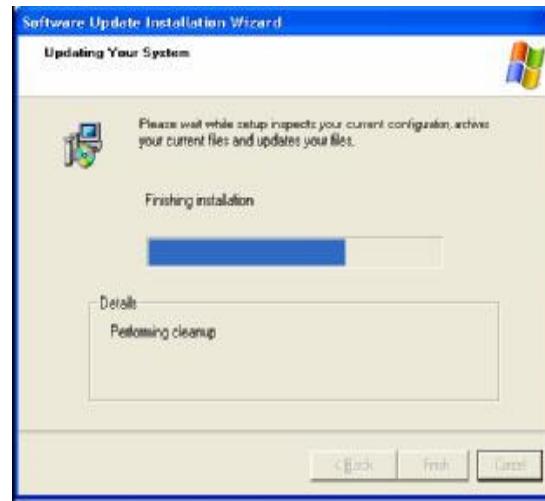
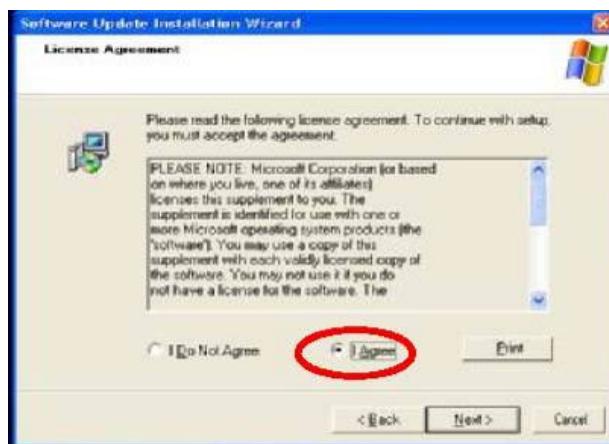
3.3. Installation of Windows XP update for Dual Core CPU

Computers that are equipped with a dual core CPU and running Windows XP Service pack 2 should install this update. Without this update, you may experience decreased performance or unexpected behavior. If your CPU is not a Dual Core, you should not need to install this update.



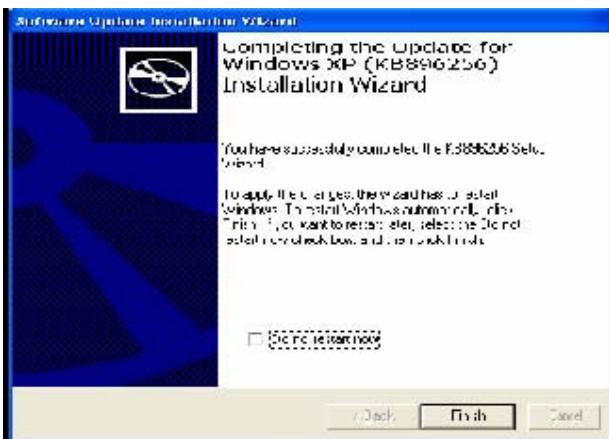
- Click "WindowsXP-KB896256-v4-ENU updated package" on the My Computer window.

- Click the "Next" button on the KB896256 window.



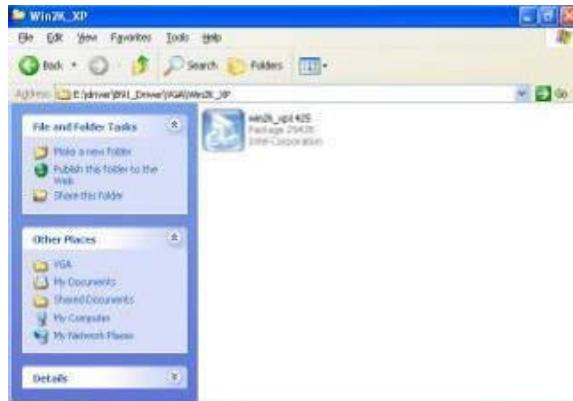
- Chose "I Agree" then click the "Next" button on the License Agreement window.

- Waiting for the configuration to be completed.



e. Click the "Finish" button and restart your system

3.4. VGA Driver Installation



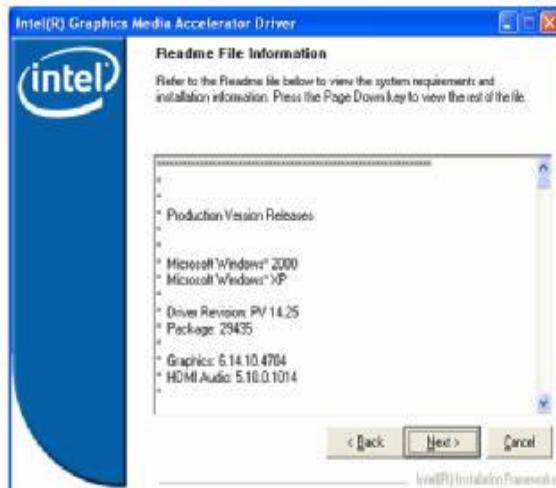
a. Double click "win2k_xp1425" on the My Computer window.



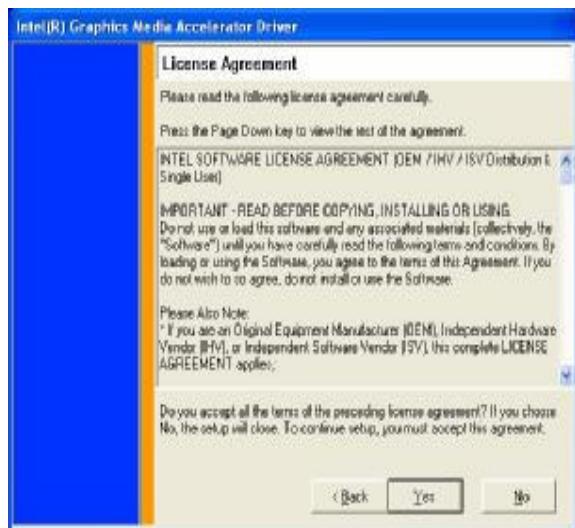
b. Click the "Next" button on the Welcome window.



c. Click the "Next" button on the Welcome Window



d. Click the "Next" button on the Readme Information Window

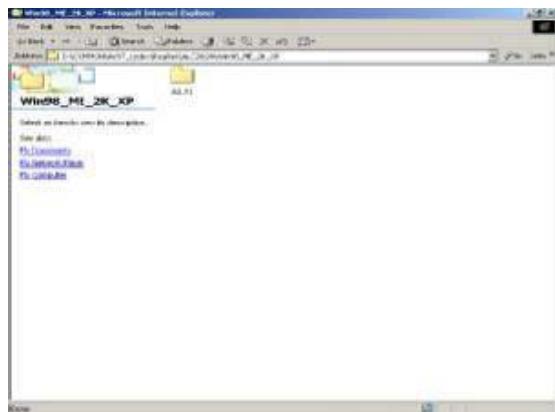


e. Click the "Yes" button on the License Agreement window.

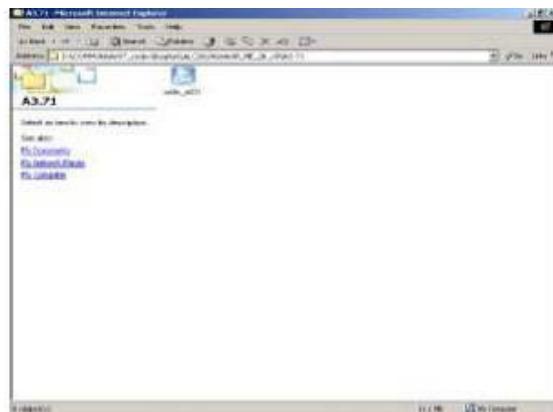


f. Click the "Finish" button and restart your system.

3.5. Audio Driver Installation



a. Click "A3.71" on the My Computer window.



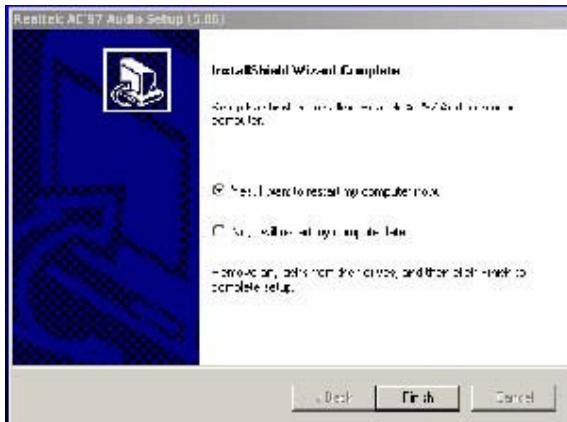
b. Double click "wdm_a371" on the My Computer window.



c. Click "Next" button on the Realtek AC'97 Audio Setup window.

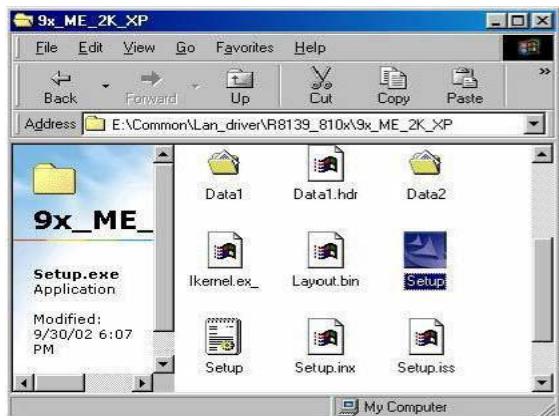


d. Click "Yes" button on the Digital Signature Not Found window.

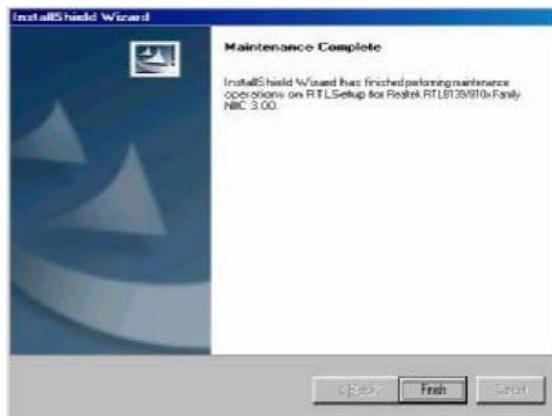


e. Click "Finish" button on the Realtek AC'97 Audio Setup window.

3.6 LAN Driver Installation



a. Double click "Setup" on the My Computer window.



b. Click the "Finish" button on the Maintenance complete window.



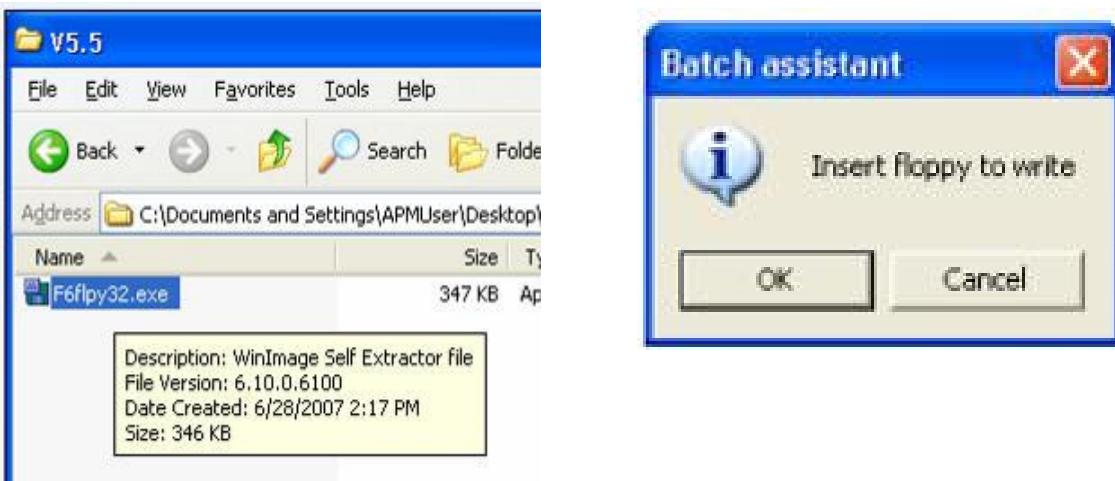
c. Click the "OK" button and restart your system.

3.7. SATA RAID Driver Installation

Before the SATA RAID driver installation, please refer to chapter 9.5 "Enabling RAID in the BIOS" and chapter 9.6 "RAID Volume Creation".

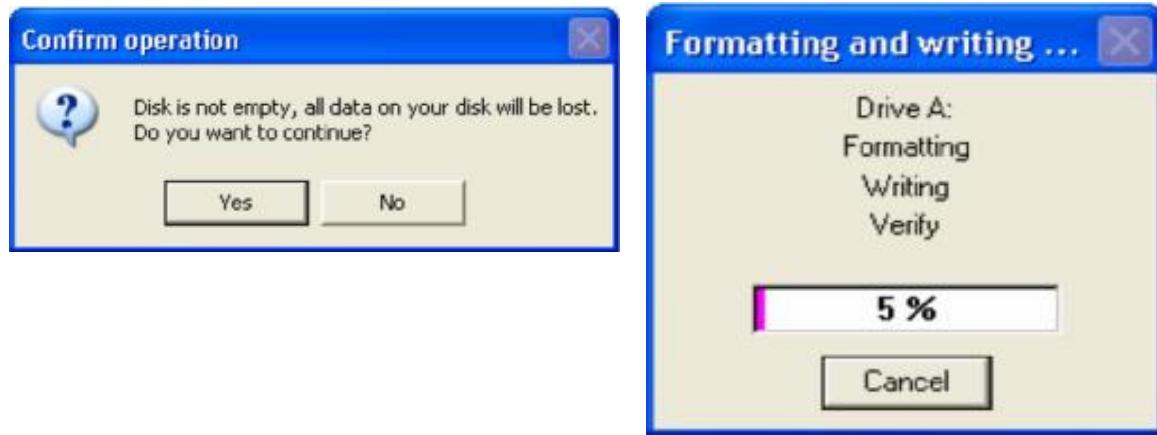
3.7.1. Create F6 driver disk

The SATA RAID Driver is for users who plan to install Windows on SATA HDDs with RAID functions. To use RAID functions, you need to make a SATA RAID Driver floppy disk before you install the operation system, such as Windows XP. If you do not plan to use RAID functions, it is not necessary to make a SATA RAID Driver floppy disk. Connect a USB-FDD to the system, then follow below steps to make a SATA RAID Driver floppy disk.



a. Double click "F6flpy32.exe" on the My computer window.

b. Insert a blank floppy disk into the FDD, and click on the "OK" button in the "Batch assistant" window.



c. Click the “Yes” button on the “Confirm operation” window

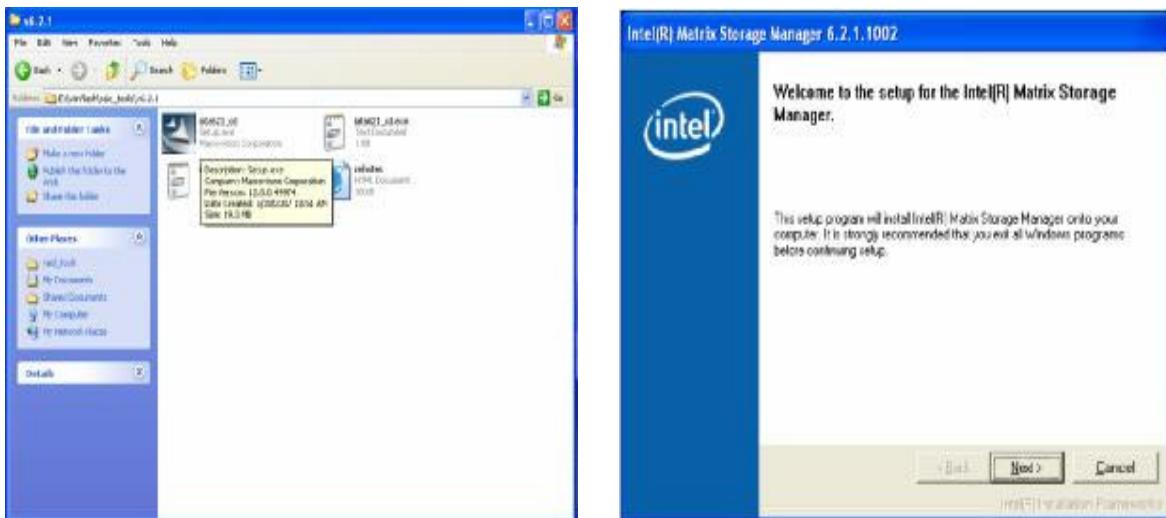
d. Wait for the driver disk to be written.

3.7.2. F6 driver installation

1. Press the **F6** key when prompted in the status line with the *Press F6 if you need to install a third party SCSI or RAID driver* message. This message appears at the beginning of Windows XP setup (during text-mode phase). **Note:** Nothing will happen immediately after pressing F6. Setup will temporarily continue loading drivers. You will then be prompted with a screen asking you to load support for mass storage device(s).
2. Press the **S** key to **Specify Additional Device**.
3. You will be prompted to *Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:* When prompted, insert the floppy disk containing the following files: IAAHCI.INF, IAAHCI.CAT, IASTOR.INF, IASTOR.CAT, IASTOR.SYS, and TXTSETUP.OEM and press the **Enter** key.
4. After pressing Enter, you should be presented with a list of available SCSI Adapters. Select your controller from the list. The up and down arrow keys can be used to scroll through the list as all controllers may not be visible. The list may include:
 - Intel® 82801ER SATA RAID Controller
 - Intel® 82801FR SATA RAID Controller
 - Intel® 82801GR/GH SATA RAID Controller
 - Intel® 82801GHM SATA RAID Controller
 - Intel® 631xESB/632xESB SATA RAID Controller
 - Intel® 82801R/DO/DH SATA RAID Controller

- 1 The next screen should confirm your selected controller. Press the **Enter** key again to continue.
- 2 At this point, you have successfully F6'ed in the Intel® Matrix Storage Manager driver and Windows setup should continue. Leave the floppy disk in the floppy drive until the system reboots. Windows setup will need to copy the files from the floppy again to the Windows installation folders. Once Windows setup has copied these files again, you should then remove the floppy diskette so that Windows setup can reboot as needed.
- 3 During Windows setup, create a partition and file system on the RAID volume as you would on any physical disk.

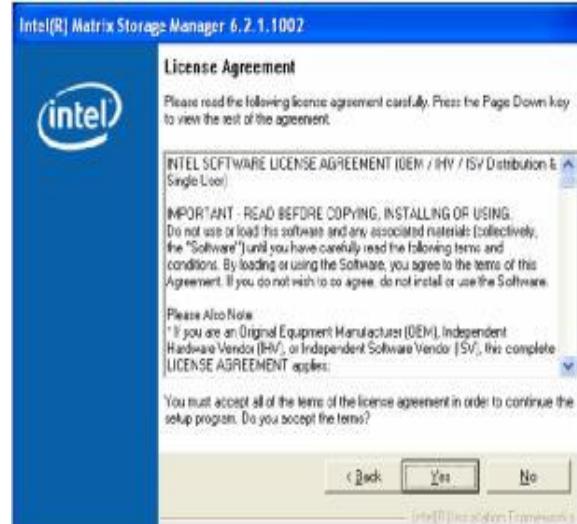
3.7.3. RAID Manager Utility installation



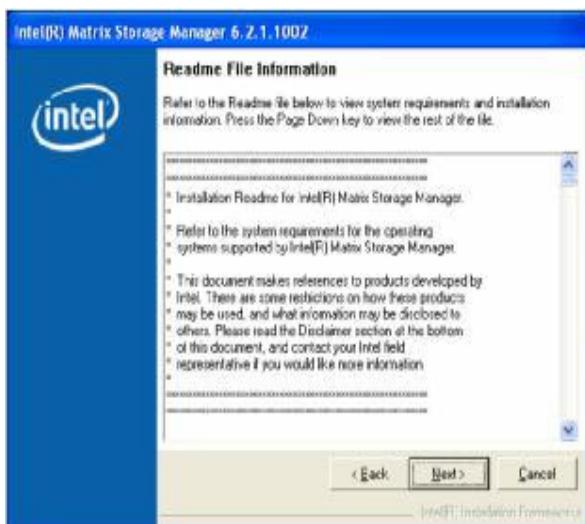
- a. Select “iata621_cd” on the My Computer Window
- b. Click the “Next” button on the Welcome window



c. Click the “Next” button on the Warning window



d. Click the “Yes”button on the License Agreement window



e. Click the “Next” button on the Readme window



f. Select “Yes, I want to restart my computer now” and click the “Finish” button to complete the installation

4. Peripherals Installation

4.1. Cash Drawer Installation

You can install a cash drawer through the Cash Drawer port. Please verify the pin assignment before installation.

4.1.1. Cash Drawer Pin Assignment

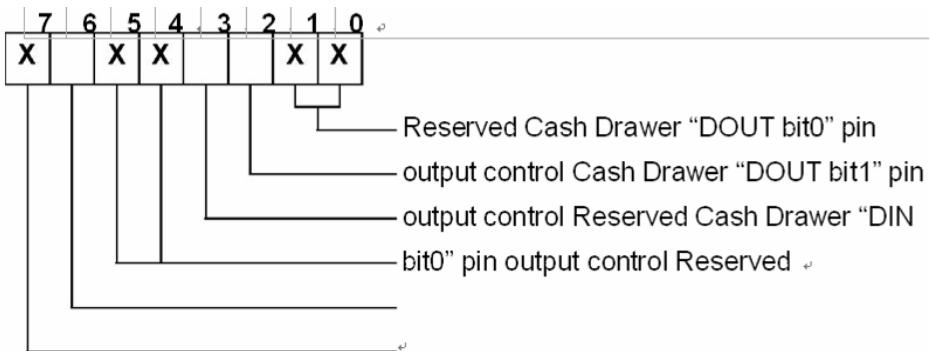
| Pin | Signal |
|-----|-----------|
| 1 | GND |
| 2 | DOUT bit0 |
| 3 | DIN bit0 |
| 4 | 12V/24V |
| 5 | DOUT bit1 |
| 6 | GND |

4.1.2. Cash Drawer Controller Register

The Cash Drawer Controller use one I/O address to control the Cash Drawer. Register Location: 48Ch

Attribute: Read / Write

Size: 8 bits



Bit 7: Reserved

Bit 6: Cash Drawer "DIN bit0" pin input status.

= 1: the Cash Drawer closed or no Cash Drawer

= 0: the Cash Drawer is open

Bit 5: Reserved

Bit 4: Reserved

Bit 3: Cash Drawer “DOUT bit1” pin output control.

= 1: Opening the Cash Drawer

= 0: Allow close the Cash Drawer

Bit 2: Cash Drawer “DOUT bit0” pin output control.

= 1: Opening the Cash Drawer

= 0: Allow close the Cash Drawer

Bit 1: Reserved

Bit 0: Reserved

Note: Please follow the Cash Drawer control signal design to control the Cash Drawer.

4.1.3. Cash Drawer Control Command Example

Use Debug.EXE program under DOS or Windows98

| Command | Cash Drawer |
|----------|----------------|
| O 48C 01 | Opening |
| O 48C 00 | Allow to close |

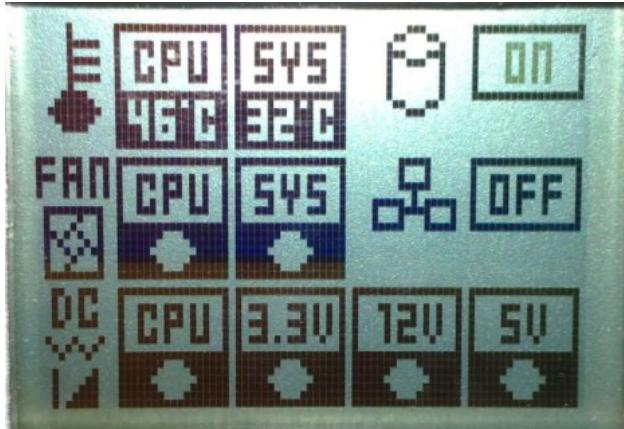
 Set the I/O address 48Ch bit2 =1 for opening Cash Drawer by “DOUT bit0” pin control. Set the I/O address 48Ch bit0 = 0 for allow close Cash Drawer.

| Command | Cash Drawer |
|---------|--------------|
| I 48C | Check status |

 The I/O address 48Ch bit6 =1 mean the Cash Drawer is opened or not exist. The I/O address 48Ch bit6 =0 mean the Cash Drawer is closed.

5. Hardware Status Display

5.1. Introduction



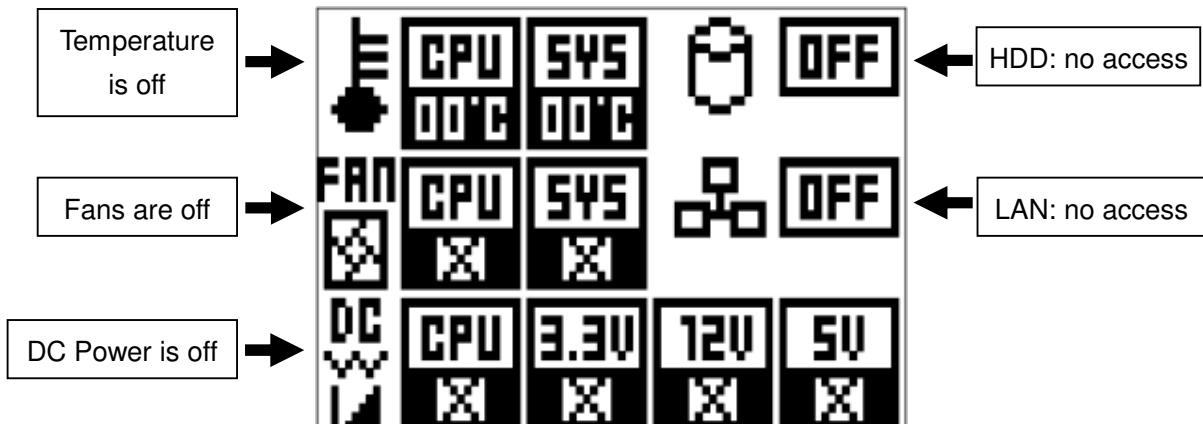
The Hardware Status Display in the front panel of the POSEO 5200 gives information about the working of the main portions of the system hardware. In case of malfunction, it shows which portion of the hardware has an abnormal status:

- Power: CPU, 3.3V, 5V, 12V
- Fan: CPU and System fan
- Temperature: CPU and System temperature.

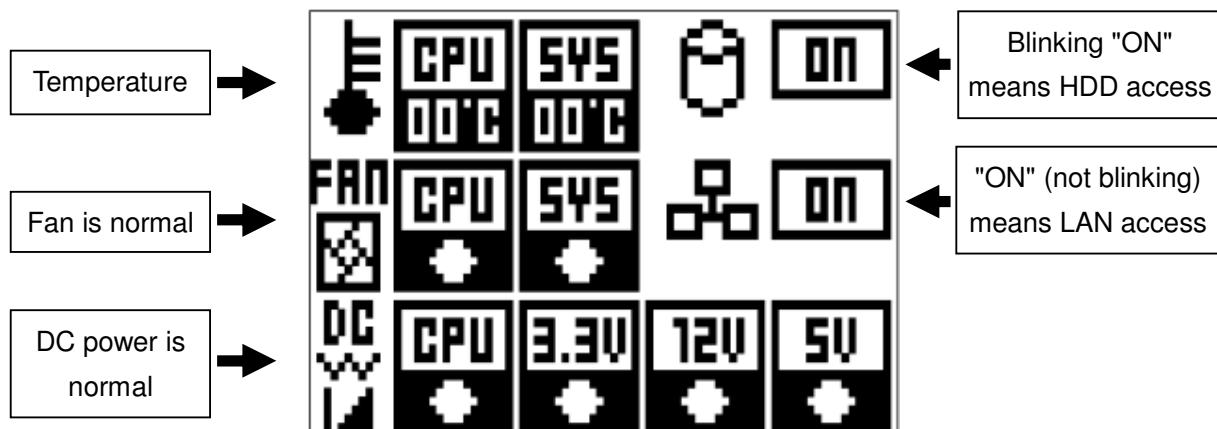
As soon as you connect the power cable, the Hardware Status Display becomes active. You can follow the progress of the booting process, and if the system hangs, the Display will show a BIOS Error code which can help with the debugging.

5.2. Function Description

5.2.1 System Power is off (Standby power)

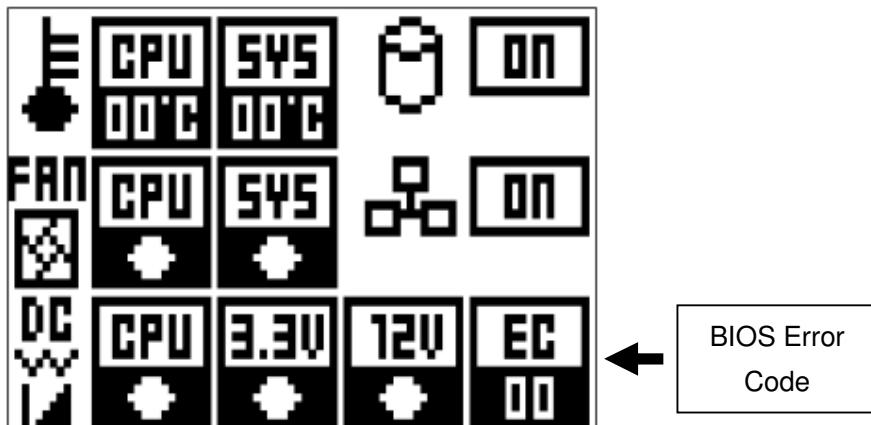


5.2.2 System Power is on (Normal status)



5.2.3 System Power is on (Abormal status)

If the system hangs during the boot sequence, the Hardware Status Display will show a BIOS Error Code, as shown below.



Note: For a list of BIOS Error Codes, please refer to Appendix B.

5.3. Function Table

| System Action | Display Shows | Remarks |
|-------------------------------|---|---|
| System Off (standby power) | <ul style="list-style-type: none"> - CPU and System Temperature (°C) - CPU and System Fan are off - DC Power is off - HDD access is off - LAN access is off | Monitor hardware status in standby power mode |
| Power On | <ul style="list-style-type: none"> - CPU and System Temperature (°C) - CPU and Fan normal/abnormal - DC Power status normal/abnormal (CPU, 3.3V, 5V, 12V) - HDD & LAN access ON/OFF | <p>The Hardware Status Display will show an Error Code if either of following conditions are true:</p> <ul style="list-style-type: none"> - 5V power is abnormal - The system can not boot normally |

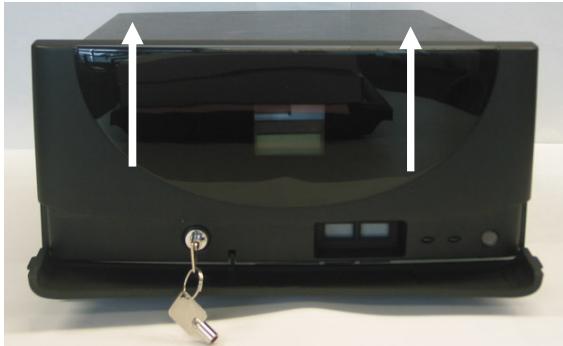
| Normal / Abnormal Thresholds |
|---|
| <ul style="list-style-type: none"> • Temperature abnormal above 80°C • Fan abnormal under 1000 rpm • CPU Voltage abnormal under 0.6V • +12V Voltage abnormal under 0.675V • +5V Voltage abnormal under 0.8V • +3.3V Voltage abnormal under 1.4V |

6. System Disassembly

6.1. Removing the Front Cover



a. Open the front cover door and unlock it with the key.



b. Lift the front cover up as shown by the arrows



c. Remove the front cover

6.2 Removing the Top Cover

To remove the top cover, please first follow the steps described in chapter 6.1.



- a. Remove the two screws on each side of the top cover
- b. Slide the top cover towards the front and remove it from the system.

6.3 Replacing the HDD

To replace the front cover, please follow the steps as described in chapter 6.1.



- a. Loosen the thumb screw (1).
- b. Lower the locking bar (1).



c. Pull on the blue tab to remove the HDD.



d. Repeat for the second HDD.

6.4. Replacing the DVD-ROM

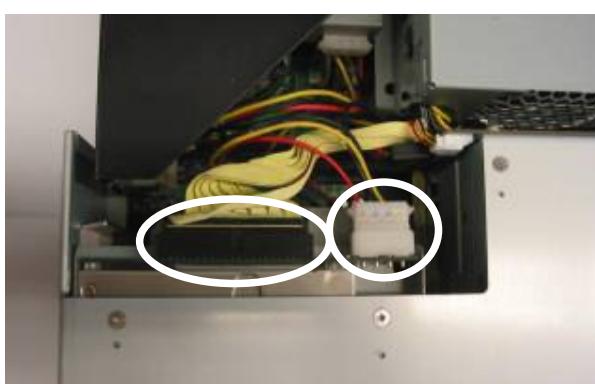
To replace the front cover, please follow the steps as described in chapter 6.1



a. Loosen the thumb screw (1)



b. Pull the DVD-ROM holder out



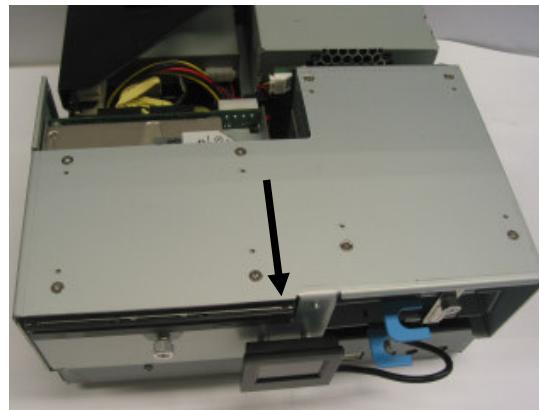
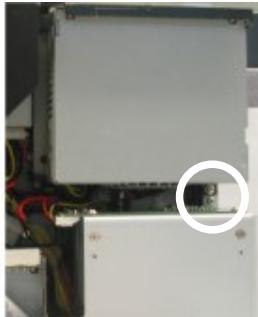
c. Disconnect the cables (2) to remove the DVD-ROM

6.5. Replacing the Power Supply

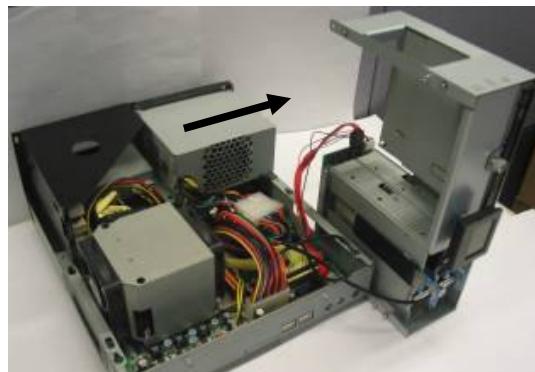
To replace the power supply, please follow the steps as described in chapters 6.1 and 6.2. If you have a DVD-ROM, disconnect the cables as shown in chapter 6.4, item c.



a. Remove the screws (3).



b. Slide the HDD module forward to release it from the chassis



c. Put the HDD module to the side as shown. Slide the power supply to the side as shown.



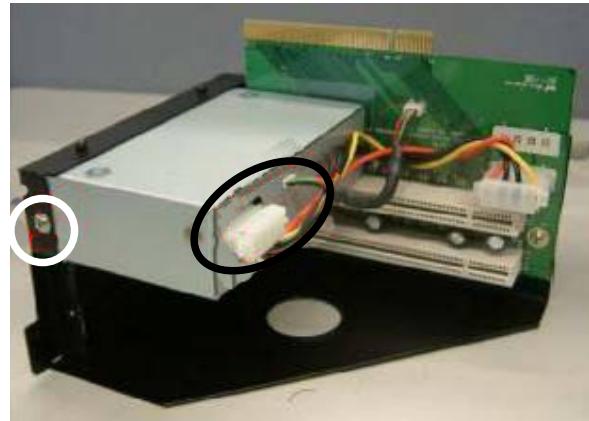
d. Disconnect the power cables (2) to remove the power supply.



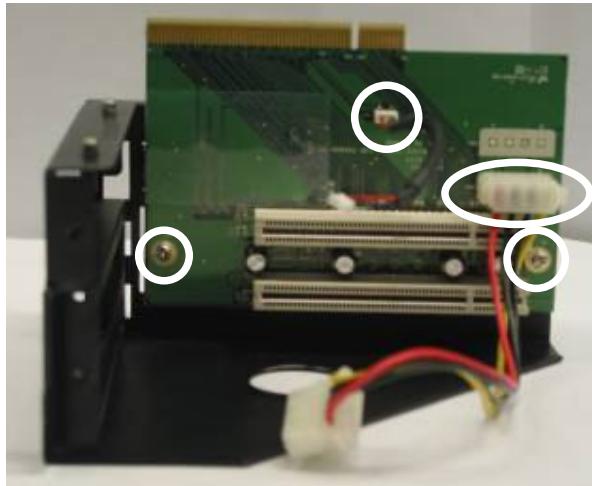
e. Remove the screws (3) to separate the power supply from the holder.

6.6. Replacing the I/O & PCI Extension Module

To replace the I/O and PCI extension module, please follow the steps as described in chapter 6.1 and 6.2



- a. Remove the extension module by gently pulling it upwards taking care not to damage the connector.
- b. Disconnect the cables (2) and remove the screws (2, one on each side) to remove the I/O module from the holder.



- c. Disconnect the cables (2) and remove the screws (2) to release the PCI riser card from the holder.

6.7. Replacing the Memory

To replace the memory, please follow the steps as described in chapter 6.1, 6.2 , 6.6(a), 6.5(a+c).



- a. Use your finger to push the DIMM slot ejector clips into the down position.
- b. Remove the memory module from the slot.

6.8. Replacing the Motherboard

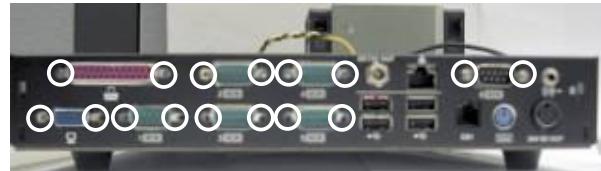
To replace the motherboard, please first follow the steps as described in chapters 6.1, 6.2, 6.5(a~d) and 6.6(a)



- a. Disconnect the HDD power cable and the SATA cable from the HDD docking board. Disconnect the Hardware Status Display cable.
- b. Disconnect all the cables from the motherboard:
 - 20 pin power cable
 - 40 pin IDE cable + DVD-ROM power cable
 - HDD SATA and power cables
 - 2 x fan cable
 - Hardware Status Display cable
 - Line Out and DC24V cables
 - VGA cable



c. Remove the screws (7)



d. Remove the hex nuts (16) to release the motherboard from the chassis

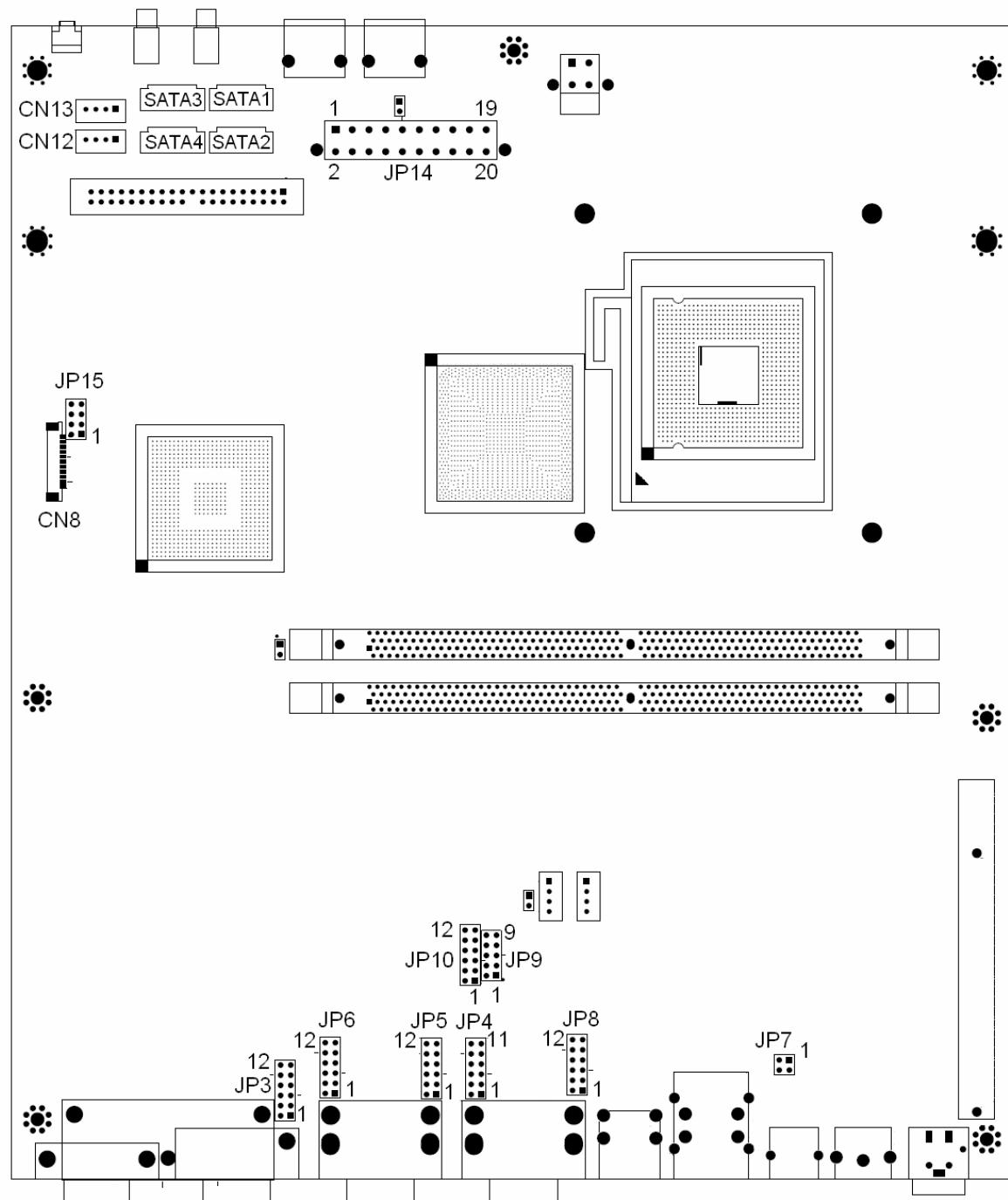
7. Specification

| Mainboard | B99 |
|-----------------------------|--|
| CPU Support | LGA775 Pentium Dual Core 1.8GHz, 1MB cache, 800 MHz FSB |
| Chipset | INTEL 945G FSB 533 / 800 / 1066 MHZ / ICH7R |
| System Memory | Up to 4GB DDR II RAM, 2 RAM-DIMM slots |
| Graphic Memory | Shared memory up to 224 MB |
| Storage | |
| HDD | 1 x 3.5" SATA, option: 1 x 3.5" SATA |
| ODD | 1 x PATA Slim CD-ROM / CD-RW / DVD-ROM Drive Bay (optional) |
| Expansion | |
| PCI Slot | 2 slots supported from PCI riser card |
| USB | 1 (USB7) |
| External I/O Ports | |
| Front I/O | |
| USB | 2 (USB1~2) |
| Power Button | 1 |
| Rear I/O | |
| PS/2 Keyboard | 1 |
| USB | 4 (USB3~ 6) |
| Serial_RS232 | 5 (COM1 , COM2, COM3, COM4, COM5) |
| Parallel | 1 |
| LAN (10 / 100 / 1000) | 1 |
| VGA | 1 (DB15) |
| DVI | 1 |
| Line- out | 1 |
| Cash Drawer Port | 1 |
| DC 24V output | 1 |
| DC 12V output | 1 (for OLC 8.4 VESA power) |
| Control / Indicators | |
| Power Button | 1 (Front) |
| LED_HDD/Power | 2 |
| Hardware Status Display | 1 |

| Internal Header | |
|--------------------------------|---|
| USB | 1 (USB8) |
| Power Button | 1 (pin header) |
| COM6 | 1 (pin header) |
| Peripherals (special feature) | |
| Second HDD (hot swap) | (optional) |
| RAID | Supports RAID 0, RAID 1 for 2 SATA HDDs |
| System ID | Built-in |
| Connectivity Module | |
| Powered USB (12V) | 2 |
| Powered USB (24V) | 1 |
| Powered USB (5V) | 1 |
| USB | 4 |
| Environment | |
| EMC & Safety | FCC Class A, CE, LVD |
| Operating Temperature | 5 °C~ 35 °C (41 °F ~95 °F) |
| Storage Temperature | -10 °C~ 60 °C (14 °F ~140 °F) |
| Storage Temperature | 10% - 90% RH non condensing |
| Storage Humidity | 10% - 90% RH non condensing |
| Dimension (W x D x H) | |
| System Box | 270 x 345 x 120mm |
| Power Supply | 230W |

8. Jumper Settings

8.1. B99 Motherboard



8.2. Connectors

| Connectors | Function |
|------------|----------------------------|
| CN4 | COM6 Connector |
| CN5 | Speaker & MIC Connector |
| CN6 | CD-in & Line-in Connector |
| CN7 | USB8 |
| CN9 | Power Connector (+5V/+12V) |
| CN10 | Power Connector (+5V/+12V) |
| CN11 | Hardware Reset Connector |
| CN12 | Power Connector (+5V/+12V) |
| CN13 | Power Connector (+5V/+12V) |
| CN15 | Power LED Connector |

| Connectors | Function |
|------------|-----------------------------------|
| CN16 | HDD Action LED Connector |
| CN17 | LAN Action LED Connector |
| CN18 | Hardware Status Display connector |
| CN19 | LVDS (DVI) |
| FAN_CPU3 | CPU Fan Connector |
| FAN_SYS3 | System Fan Connector |
| IDE3 | Primary IDE Connector |
| PWR3 | +24V Power Output |
| PWR5 | +12V Connector |
| | |

8.3. Jumper Settings

1. COM1 Power Setting ◎Factory Default Setting

| Pin | Function | JP4 (SHORT) |
|-----|----------|-------------|
| 1 | DCD# | ◎1-2 |
| | +5V | 3-4 |
| | +12V | 5-6 |
| 9 | RI# | ◎7-8 |
| | +5V | 9-10 |
| | +12V | 11-12 |

2. COM 2 Power Setting

| Pin | Function | JP8 (SHORT) |
|-----|----------|-------------|
| 1 | DCD# | ◎1-2 |
| | +5V | 3-4 |
| | +12V | 5-6 |
| 9 | RI# | ◎7-8 |
| | +5V | 9-10 |
| | +12V | 11-12 |

3. COM 3 Power Setting

| Pin | Function | JP6 (SHORT) |
|-----|----------|-------------|
| 1 | DCD# | ◎1-2 |
| | +5V | 3-4 |
| | +12V | 5-6 |
| 9 | RI# | ◎7-8 |
| | +5V | 9-10 |
| | +12V | 11-12 |

4. COM 4 Power Setting

| Pin | Function | JP5 (SHORT) |
|-----|----------|-------------|
| 1 | DCD# | ◎1-2 |
| | +5V | 3-4 |
| | +12V | 5-6 |
| 9 | RI# | ◎7-8 |
| | +5V | 9-10 |
| | +12V | 11-12 |

5. COM 5 Power Setting

| Pin | Function | JP3 (SHORT) |
|-----|----------|-------------|
| 1 | DCD# | ◎1-2 |
| | +5V | 3-4 |
| | +12V | 5-6 |
| 9 | RI# | ◎7-8 |
| | +5V | 9-10 |
| | +12V | 11-12 |

6. 2ND Display Power Setting

| Function | JP11 (SHORT) |
|----------|--------------|
| +12V | 1-2 |
| NC | ◎1 |

7. CMOS Operation Mode Setting

| Function | JP13 (SHORT) |
|-------------|--------------|
| COMS Normal | ◎N/C |
| COMS Reset | 1-2 |

8. Power Mode Setting

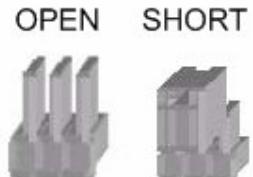
| Function | JP14 (SHORT) |
|-----------|--------------|
| ATX Power | ◎N/C |
| AT Power | 1-2 |

9. Cash Drawer Power Setting

| Voltage | JP7 (SHORT) |
|---------|-------------|
| +12V | 1-2 |
| + 24V | ◎3-4 |

10. Hardware Status Display

| Function | JP15 (SHORT) |
|----------|--------------|
| Disable | ◎1-2 3-4 |
| Enable | 5-6 7-8 |



8.4. Connector and Pin Definitions

CN5: Speaker & MIC Connector

| | | | |
|-------|---------|-------|---------|
| Pin 1 | AMP_ORL | Pin 2 | GND |
| Pin 3 | GND | Pin 4 | AMP_ORR |
| Pin 5 | GND | Pin 6 | MIC1 |

CN6: CD-IN Connector

| | | | |
|-------|-----------|-------|-----------|
| Pin 1 | CDIN_L | Pin 2 | CDIN_REF |
| Pin 3 | CDIN_R | Pin 4 | CDIN_REF |
| Pin 5 | GND | Pin 6 | LINE_IN_L |
| Pin 7 | LINE_IN_R | Pin 8 | GND |

CN7: USB8

| | | | |
|-------|-------------|-------|------------|
| Pin 1 | +5V_USB1 | Pin 2 | USB20_R_P1 |
| Pin 3 | USB20_R_P1+ | Pin 4 | GND |

CN9/10/12/13: Power Connector (+5V/+12V)

| | | | |
|-------|------|-------|-----|
| Pin 1 | +12V | Pin 2 | GND |
| Pin 3 | GND | Pin 4 | +5V |

CN11: Hardware Reset Connector

| | |
|-------|---------------|
| Pin 1 | GND |
| Pin 2 | ALL_SYS_PWRGD |

PWR5: +12V Power Connector

| | | | |
|-------|----------|-------|----------|
| Pin 1 | GND | Pin 2 | GND |
| Pin 3 | +12V_ATX | Pin 4 | +12V_ATX |

9. RAID BIOS Settings

9.1. BIOS Setup Utility

The BIOS setup defines how the system is configured. You need to run this program the first time you configure this product. You may need to run it again if you change the configuration. You need to connect a PC keyboard to the keyboard connector to run the BIOS setup utility.

9.2. Starting the BIOS Setup

1. Turn on or reboot this product.
2. Press the DEL key immediately after the product is turned on, or press the DEL key when the following message is displayed during POST (the Power on Self-Test).

Press DEL to enter SETUP.

3. The main menu of the BIOS setup is displayed.
4. If the supervisor password is set, you must enter it here.

If, after making and saving system changes with the Setup utility, you find that this product no longer boots, start the BIOS setup and execute the following.

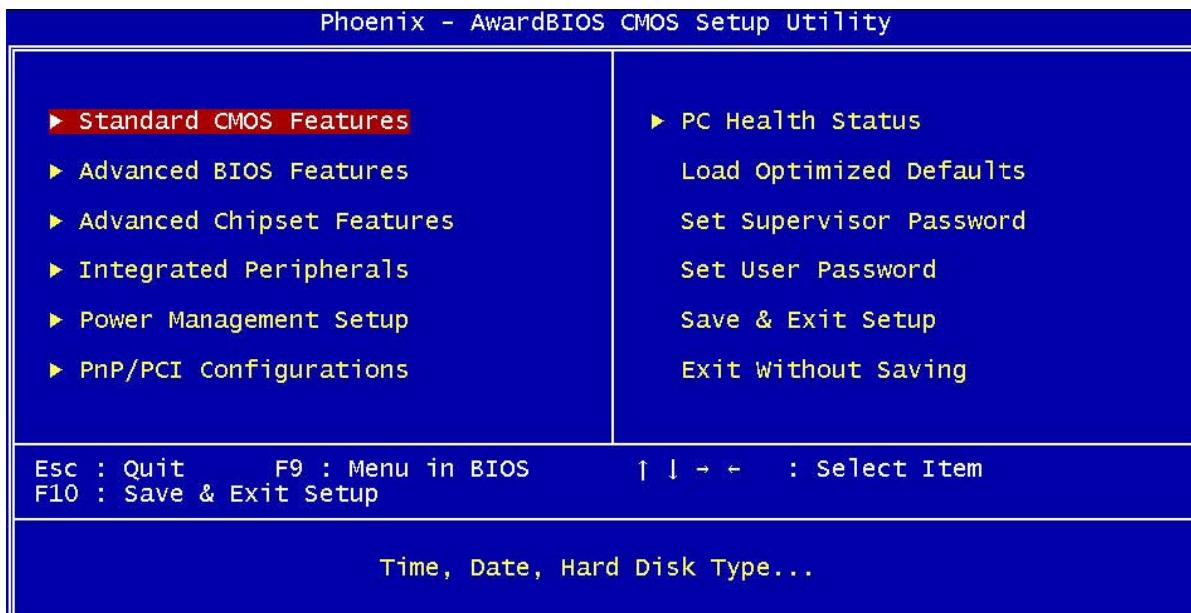
9.3. When a Problem Occurs

Load Optimized Defaults

9.4. BIOS Main Menu

When the BIOS Main Menu is displayed, the following items can be selected. Use the arrow keys to select items and the Enter key to accept and enter the sub-menu.

Note: The BIOS menu below is from B99 RAID BIOS version B990V10.BIN. If you have a different BIOS version, the contents of the menu may differ slightly.



Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on the system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize the system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports Plug and Play and PCI Configuration.

PC health status

Displays CPU, System Temperature, Fan Speed, and System Voltages Value.

Load Optimized Defaults

Use this menu to load the BIOS default values, i.e., factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the option to change these defaults to meet their needs

Set Supervisor Password

Enables you to change, set, or disable the supervisor or user password

Set Password

Change, set, or disable the password. It allows you to limit access to the system and to the setup, or just to the setup.

Save & exit setup

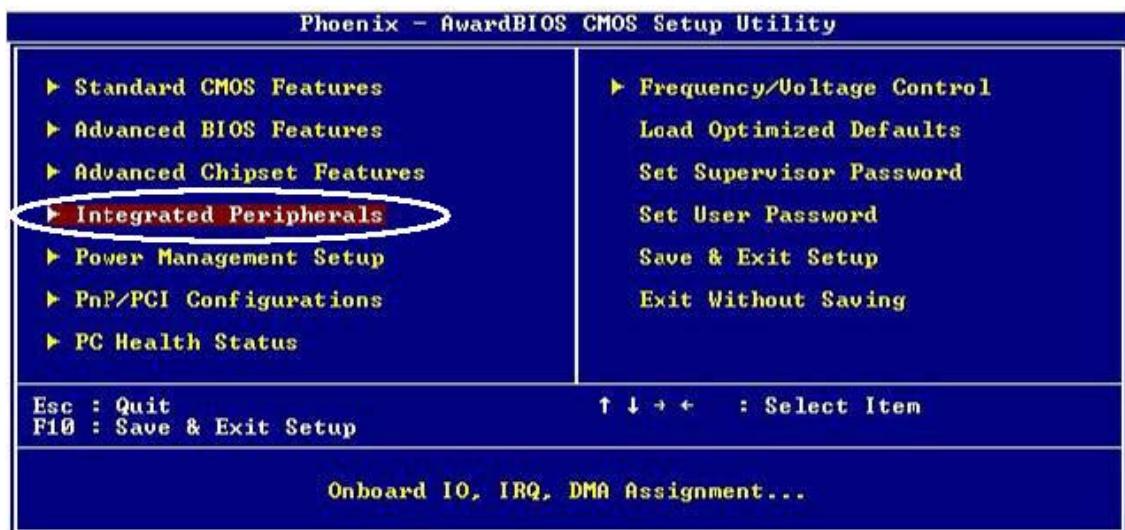
Save CMOS value changes to CMOS and exits setup.

Exit without saving

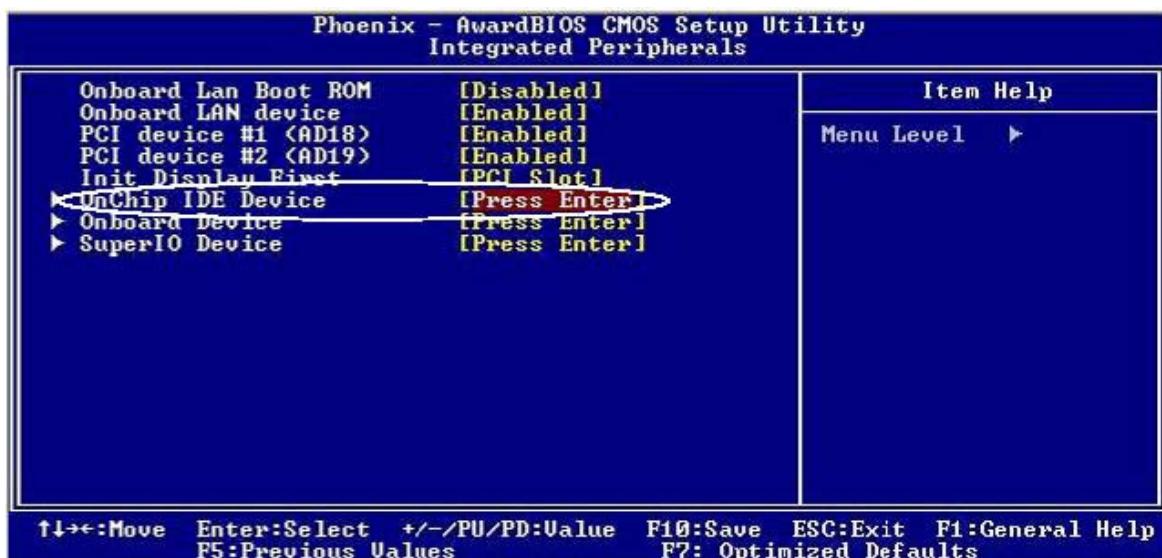
Ignores all CMOS value changes and exits setup.

9.5. Enabling RAID in the BIOS

Enter the BIOS Setup program by pressing the **DEL** key.



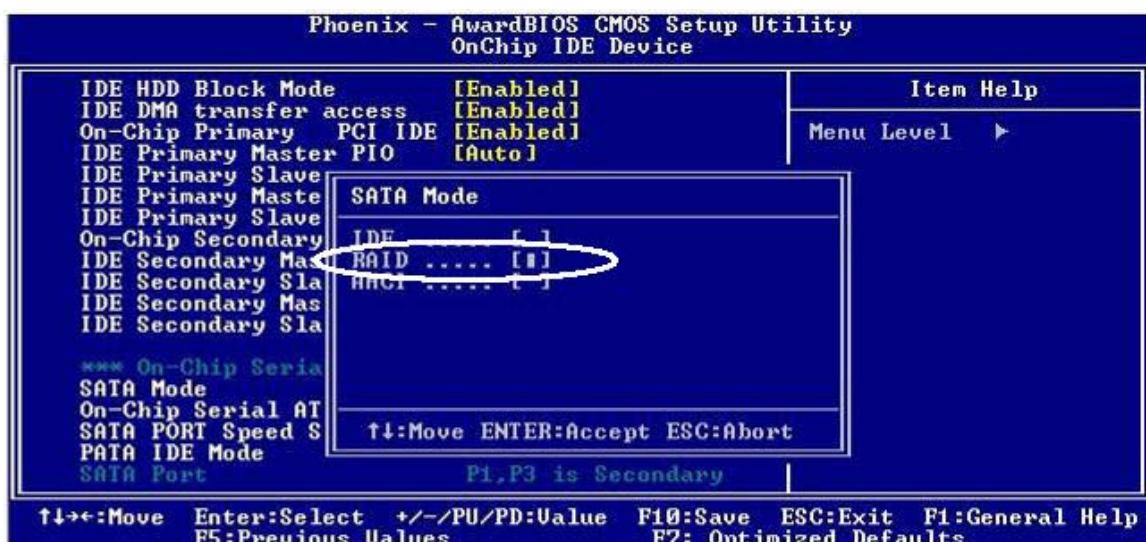
Select **Integrated Peripherals**, and then press "Enter"



Select **OnChip IDE Device**, and then press "Enter"



Select **SATA Mode**, and then press “Enter”



Select **RAID**, and then press “Enter”

Press the **F10** key to save the BIOS settings and exit the BIOS Setup program.

9.6. RAID Volume Creation

- 1 When the Intel® Matrix Storage Manager option ROM status screen appears during POST, press the **Ctrl** and **i** keys at the same time to enter the Intel Matrix Storage Manager option ROM user interface.
- 2 Select **Option 1: Create RAID Volume** and press the **Enter** key.
- 3 Use the up or down array keys to select the RAID level and press the **Enter** key.
- 4 Unless you have selected RAID 1, use the up or down arrow keys to select the strip size and

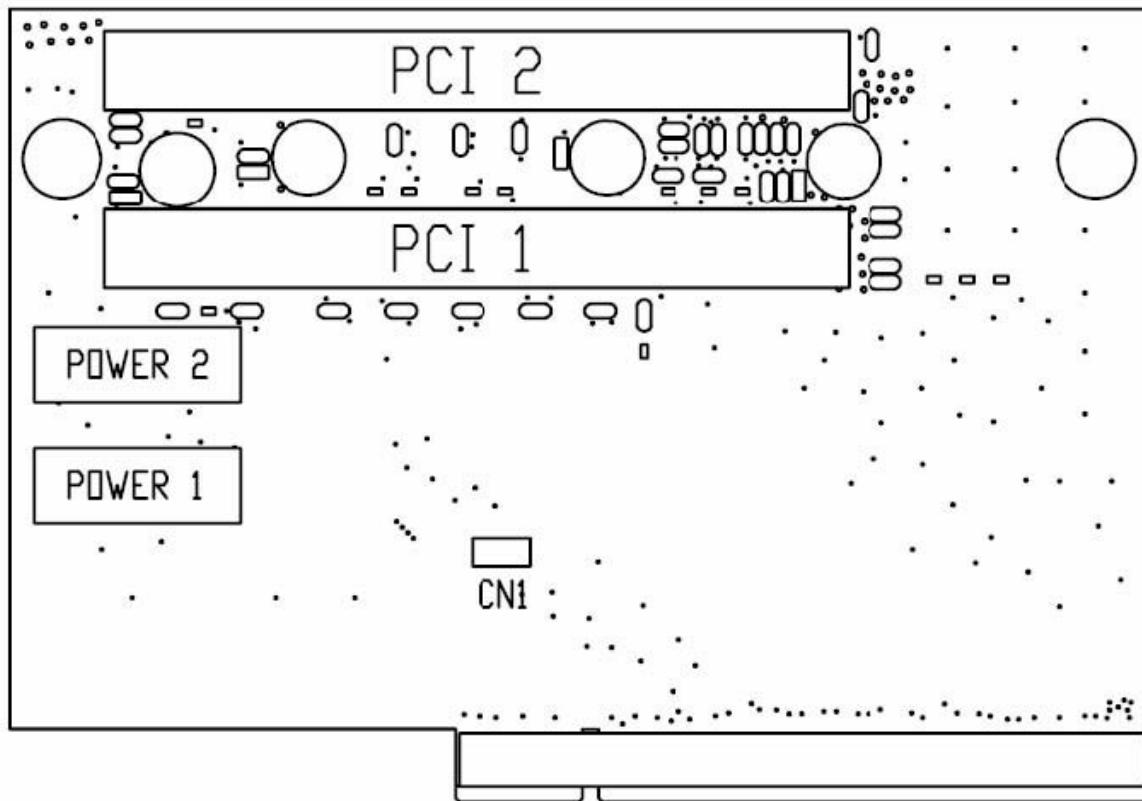
press the **Enter** key.

- 5 Press the **Enter** key to select the physical disks.
- 6 Select the appropriate number of hard drives by using the up or down arrow keys to scroll through the list of hard drives and pressing the **Space** key to select the drive. When finished, press the **Enter** key.
- 7 Select the volume size and press the **Enter** key.
- 8 Press the **Enter** key to create the volume. At the prompt, press the **Y** key to confirm volume creation.
- 9 Select **Option 4: Exit** and press the **Enter** key. Press the **Y** key to confirm exit.

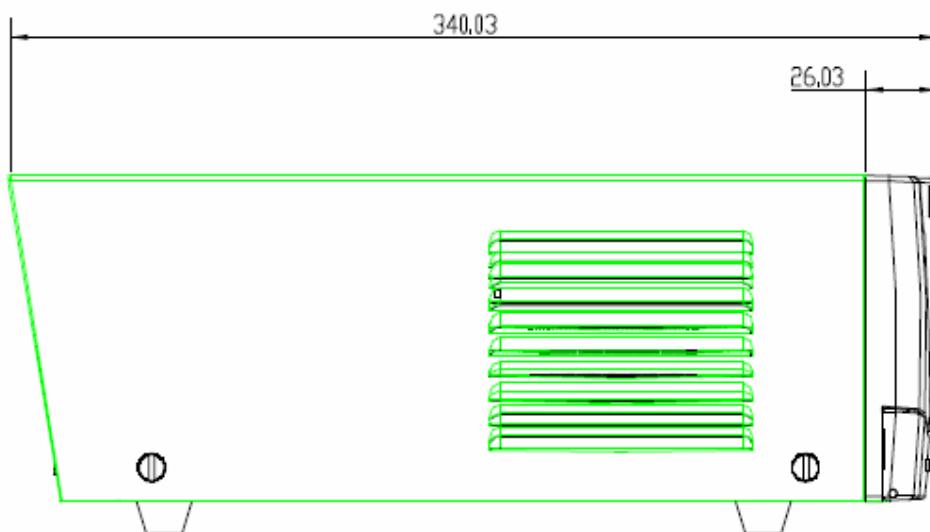
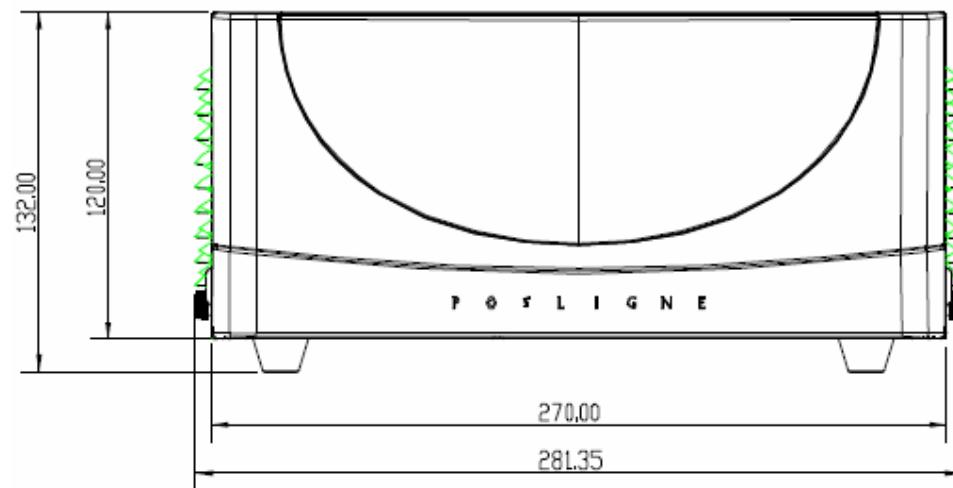
Appendix A: PCI Card Dimensions

Maximum dimension of the PCI add-on card: Component Side: 130mm x 90.26mm (D x W)

(Picture 1)



Appendix B: Dimensional Drawings



Appendix C: BIOS Error Codes

| POST (hex) | Description |
|------------|---|
| CFh | Test CMOS R/W functionality. |
| C0h | Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers |
| C1h | Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below) |
| C3h | Expand compressed BIOS code to DRAM |
| C5h | Call chipset hook to copy BIOS back to E000 & F000 shadow RAM. |
| 0h1 | Expand the Xgroup codes locating in physical address 1000:0 |
| 02h | Reserved |
| 03h | Initial Superio_Early_Init switch. |
| 04h | Reserved |
| 05h | 1. Blank out screen 2. Clear CMOS error flag |
| 06h | Reserved |
| 07h | 1. Clear 8042 interface 2. Initialize 8042 self-test |
| 08h | 1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface. |
| 09h | Reserved |
| 0Ah | 1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips. |
| 0Bh ~ 0Dh | Reserved |
| 0Eh | Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker. |
| 0Fh | Reserved |
| 10h | Auto detect flash type to load appropriate flash R/W codes into the |

| POST (hex) | Description |
|------------|--|
| | run time area in F000 for ESCD & DMI support. |
| 11h | Reserved |
| 12h | Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override. |
| 13h | Reserved |
| 14h | Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers. |
| 15h | Reserved |
| 16h | Initial Early_Init_Onboard_Generator switch. |
| 17h | Reserved |
| 18h | Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686). |
| 19h ~ 1Ah | Reserved |
| 1Bh | Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR. |
| 1Ch | Reserved |
| 1Dh | Initial EARLY_PM_INIT switch. |
| 1Eh | Reserved |
| 1Fh | Load keyboard matrix (notebook platform) |
| 20h | Reserved |
| 21h | HPM initialization (notebook platform) |
| 22h | Reserved |
| 23h | <ol style="list-style-type: none"> 1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 5. Early PCI initialization: <ul style="list-style-type: none"> -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0. |

| POST (hex) | Description |
|------------|--|
| 24h ~ 26h | Reserved |
| 27h | Initialize INT 09 buffer |
| 28h | Reserved |
| 29h | <ol style="list-style-type: none"> 1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed. 5. Invoke video BIOS. |
| 2Ah ~ 2Ch | Reserved |
| 2Dh | <ol style="list-style-type: none"> 1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed |
| 2Eh ~ 32h | Reserved |
| 33h | Reset keyboard except Winbond 977 series Super I/O chips. |
| 34h ~ 3Bh | Reserved |
| 3Ch | Test 8254 |
| 3Dh | Reserved |
| 3Eh | Test 8259 interrupt mask bits for channel 1. |
| 3Fh | Reserved |
| 40h | Test 8259 interrupt mask bits for channel 2. |
| 41h ~ 42h | Reserved |
| 43h | Test 8259 functionality. |
| 44h ~ 46h | Reserved |
| 47h | Initialize EISA slot |
| 48h | Reserved |
| 49h | <ol style="list-style-type: none"> 1. Calculate total memory by testing the last double word of each 64K page. 2. Program write allocation for AMD K5 CPU. |
| 4Ah ~ 4Dh | Reserved |
| 4Eh | <ol style="list-style-type: none"> 1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical. |
| 4Fh | Reserved |
| 50h | Initialize USB |

| POST (hex) | Description |
|------------|---|
| 51h | Reserved |
| 52h | Test all memory (clear all extended memory to 0) |
| 53h ~54h | Reserved |
| 55h | Display number of processors (multi-processor platform) |
| 56h | Reserved |
| 57h | 1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device. |
| 58h | Reserved |
| 59h | Initialize the combined Trend Anti-Virus code. |
| 5Ah | Reserved |
| 5Bh | (Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional) |
| 5Ch | Reserved |
| 5Dh | 1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onbaord_AUDIO switch. |
| 5Eh ~ 5Fh | Reserved |
| 60h | Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility. |
| 61h ~ 64h | Reserved |
| 65h | Initialize PS/2 Mouse |
| 66h | Reserved |
| 67h | Prepare memory size information for function call: INT 15h ax=E820h |
| 68h | Reserved |
| 69h | Turn on L2 cache |
| 6Ah | Reserved |
| 6Bh | Program chipset registers according to items described in Setup & Auto-configuration table. |
| 6Ch | Reserved |
| 6Dh | 1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO". |
| 6Eh | Reserved |
| 6Fh | 1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware. |

| POST (hex) | Description |
|-------------------|--|
| 70h ~ 72h | Reserved |
| 73h | (Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed |
| 74h | Reserved |
| 75h | Detect & install all IDE devices: HDD, LS120, ZIP, CDROM..... |
| 76h | Reserved |
| 77h | Detect serial ports & parallel ports. |
| 78h ~ 79h | Reserved |
| 7Ah ~ 7Eh | Detect & install co-processor |
| 7Fh | 1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: ◆Clear EPA or customization logo. |
| 80h ~ 81h | Reserved |
| E8POST.ASM starts | |
| 82h | 1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password. |
| 83h | Save all data in stack back to CMOS |
| 84h | Initialize ISA PnP boot devices |
| 85h | 1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs. |
| 86h ~ 92h | Reserved |
| 93h | Read HDD boot sector information for Trend Anti-Virus code |
| 94h | 1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table |

| POST (hex) | Description |
|-------------------|--|
| | 6. Program K6 write allocation 7. Program P6 class write combining |
| 95h | 1. Program daylight saving 2. Update keyboard LED & typematic rate |
| 96h | 1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table. |
| FFh | Boot attempt (INT 19h) |